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EXAMINER	
CORBETT, JOHN M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,341	GOTO ET AL.	
	Examiner	Art Unit	
	JOHN M. CORBETT	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 3-9 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and/or lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following correction(s) may obviate the objection(s):

(Claim 1, line 8, "the object" was claimed which lacks antecedent basis, perhaps "the examinee" was meant).

(Claim 1, line 8; "the detected projection data" was claimed which lacks antecedent basis, perhaps in Claim 1, line 6 "using said radiation detector to obtain projection data" was meant to provide antecedent basis).

(Claim 7, line 3, "the object" was claimed which lacks antecedent basis, perhaps "the examinee" was meant).

(Claim 8, line 4, "the object" was claimed which lacks antecedent basis, perhaps "the examinee" was meant).

Claims 3-9 are objected to by virtue of their dependency. Appropriate correction is required.

2. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the

claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

With respect to claim 4, the phrase "wherein said projection data phase range is either 270 degrees or 360 degrees" allows for the selection of the alternative 360 degrees which broadens the independent claim 1. Claim 1 states that the "a phase data phase range as an angle ***between*** 180 and 360 degree". The Examiner notes that the use of the term "between" does not include in the range of either 180 or 360 degrees, only includes the values ***between***. Therefore, an alternative selection of 360 degrees in dependent claim 4 broadens the range of independent claim 1 from which it depends. The claim therefore is an improper dependent claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 3-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, the term "a difference in the absolute values of the cone angles at both ends of the projection data phase range is reduced" is a relative term which renders the claim indefinite. The term "reduced" is not defined by the claim, the specification does not

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the claim is indefinite. Claims 3-9 are rejected by virtue of their dependency.

With respect to claim 3, it is unclear to the Examiner as to the limiting meaning of the claimed phrase "the projection data phase range used is determined so as to be the". The claim appears to be incomplete. Claims 5-6 are rejected by virtue of their dependency.

With respect to claim 7, the limitation "associating pixel intervals in the body axis direction" by itself is unclear insofar as the meaning is not understood. It is unclear to the Examiner as to the origin of the pixel or how the body axis direction now relates. Therefore the claims are rejected for being indefinite. Claims 8 and 9 are rejected by virtue of their dependency.

4. Claim 7 is rejected 35 U.S.C. 112, second paragraph, as being incomplete for emitting essential cooperative relationships of elements, such omission amounting to a gap between necessary connections. See MPEP § 2172.01. The omitted cooperative relationships are the links between the three-dimensional voxels which are obtained by a three-dimensional backprojection reconfiguration (reconstruction) of claim 1 and the two-dimensional pixels which have intervals in the body axis direction as now recited in claim 7. No connection or relationship has been recited in the claims between said voxels and pixels, thereby making the claim incomplete and indefinite. Claims 8 and 9 are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Wang et al. ("Half-Scan Cone-Beam X-ray Microtomography Formula", 1993, Scanning, Volume 16, Pages 216-220) in view of Tam (5,390,112).

With respect to claim 1, Wang et al. discloses an X-ray tomograph (Abstract and Page 216, Col. 2, lines 11-20) comprising:

a radiation source and a radiation detector arranged opposite to each other, between which a mount with an examinee placed thereon is provided, said radiation source and radiation detector in relative motion around said mount which can be moved with respect to a go-around axis, radiation irradiated from said radiation source and passing through the examinee being detected using said radiation detector (Page 216, Col. 2, lines 11-20); and

reconfiguration means (Page 216, Col. 2, lines 16-18) for creating a three-dimensional tomographic image in a region in concern of the object from the detected projection data (via formula 5), said reconfiguration means

determines for each voxel a projection data phase range as an angle between 180 degrees and 360 degrees from projection data obtained at a spiral orbit scan so that a difference in absolute values of cone angles at both ends of the projection data phase range used is necessarily reduced (Abstract, Page 218, Col. 1, lines 19-30 and Figures 2-3. In the half scan reconstruction, 180 plus at least two fan beam angles of data used to reconstruct slice where the half-scan locus has a midpoint that meets the slice. In this geometry, a difference in absolute values of cone angles at both ends of the projection data phase range used is necessarily reduced from that of full-scan reconstruction.),

superimposes a reconfiguration filter (Page 217, Col. 2, lines 1-4, Page 218, Col. 1, lines 2-4 and Equation 5),

assigns weights to data of the same phase or opposite phase for each phase for the projection data phase range (Page 218, Col. 1, lines 6-7 and Equation 5) and

three-dimension back projects the filter-processed projection data over said projection data phase range determined for each voxel along the irradiation trace of the radiation beam (Equation 5).

Wang et al. fails to disclose a bed with an examinee placed thereon is provided, said radiation source and radiation detector turning around said bed.

Tam teaches said radiation source and radiation detector turning around examinee and necessarily a support (bed) with an examinee placed thereon is provided (Col. 4, lines 47-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Wang et al. to include the support (bed) and the turning of the source and detector around the support (bed) of Tam, since providing relative motion

between an object and the source/detector pair by rotating either the object or the source/detector pair are two art recognized equivalents as shown by Tam (Col. 4, lines 47-64) and the substitution requires no more than ordinary skill in the art. A person would have been motivated to make such a modification to improve patient comfort by allowing the patient to remain in a horizontal position while imaging (Col. 4, lines 47-64) as implied by Tam.

With respect to claim 3, Wang et al. as modified above suggests the apparatus as recited above.

The claim recitation "the projection data phase range used is determined so as to be the" does not distinguish over the prior art of Wang et al. as modified above since claim 3 does not further limit independent claim 1.

With respect to claim 7, Wang et al. further discloses associating means (Page 216, Col. 2, lines 16-18, computer) is provided for associating pixel intervals in the body axis direction with the relative moving speed between the object and said radiation source in the go-around axis direction (Page 218, Col. 1, lines 19-30 and Page 219, Col. 2, lines 3-17. The interval between slices reconstructed every half turn of spiral is necessarily related to the pitch at which the projection data is acquired.).

With respect to claim 8, Wang et al. as modified above suggests the apparatus as recited above.

Wang et al. further discloses spiral half scan reconstruction (Equation 5).

Wang et al. fails to explicitly discloses said associating means is constructed so that the relationship between pixel interval rpitch in the body axis direction of a square image and the relative moving speed in the go-around axis direction of the object and said radiation source is expressed by 2 * N * rpitch (N=1, 2, 3 . . . . .).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Wang et al. as modified above the interval of at least 2 * N * rpitch where N is equal to at least 1, since the modification would have only involved a mere change in an optimum value of the invention which involves no more than routine skill in the art. A person would have been motivated to make such a modification to improve imaging by performing half-scan reconstruction of planes at at least every half rotation interval thereby more fully utilizing the acquired data.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Wang et al. as modified above the reconstructing slices at regular, fixed, intervals (N=1,2,3,…), since the modification would have only involved a mere change in an optimum value of the invention which involves no more than routine skill in the art. A person would have been motivated to make such a modification to improve imaging by allowing a medical practitioner to more easily view the reconstructed image by scrolling through a stack of reconstructed slices that are aligned in the body axis direction that are reconstructed at regular intervals.

Note: The Examiner notes that there is no preferred location along a spiral. The first slice can be selected for reconstruction at any position long the z axis of the continuous spiral scanning path.

With respect to claim 9, Wang et al. as modified above suggests the apparatus as recited above. Wang et al. further discloses spiral half scan reconstruction (Equation 5). Furthermore, Wang et al. as modified above would necessarily include wherein at the phase of $N\pi$ (N=1, 2, 3, ...) radians of the radiation source, the position on the radiation detector at which the beam passing through a voxel I (x, y, Z) whose body axis direction position is Z millimeters intersects and the position on the radiation detector at which the beam passing through a voxel I (-x, -y, N * (J/2) + Z) whose body axis direction position is N * (J/2) + Z millimeters intersects are the same.

Note: The Examiner takes the position that the configuration required by the claimed equation is necessarily met by the geometrical configuration of the invention of Wang et al. to include at least N=1 as noted above.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Tam as applied to claim 1 above, and further in view of Suparta ("Focusing Computed Tomography", 2000, 15th WCNDT Roma 2000, available at http://www.ndt.net/article/wcndt00/papers/idn142/idn142.htm).

With respect to claim 4, Wang et al. as modified above suggests the apparatus as recited above.

Wang et al. fails to explicitly disclose either 270 degrees or 360 degrees.

Suparta teaches reconstruction with different fan angle widths (Page 3, lines 1-2 and Figures 3-5, fan angle widths of 45° and 60°).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Wang et al. as modified above the fan beam angle of Suparta, since a person would have been motivated to make such a modification to improve imaging by selecting a fan beam width large enough to image the entire object thereby reducing imaging time (Page 4, Concluding Remarks) as implied by Suparta.
Note: The reconstruction of Wang et al. requires 180° plus twice the fan beam angle to satisfy data sufficiency conditions, $180^{\circ} + 2*45^{\circ} = 270^{\circ}$).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Tam as applied to claim 3 above, and further in view of Lin (US 5,047,931).

With respect to claim 5, Wang et al. as modified above suggests the apparatus as recited above in claim 3.

Wang et al. further discloses said reconfiguration means comprises

back projection means for superimposing said reconfiguration filter on this projection data and performing back projection to an image array (Page 216, Col. 2, lines 16-18 and Equation 5 as modified above).

Wang et al. fails to discloses projection data whose images taken per rotation is a multiple of the number of sides C of a rectangle or hexagon is acquired, and

said reconfiguration means comprises

grouping data at the same channel position and having projection phases in the go-around direction shifting by $2N\pi/C$ (N=1, 2, 3, ...) radians at a time and

performing back projection to a square image array group by group.

Lin teaches projection data whose images taken per rotation is a multiple of the number of sides C of a rectangle or hexagon is acquired, and

said reconfiguration means comprises

grouping data at the same channel position and having projection phases in the go-around direction shifting by $2N\pi/C$ (N=1, 2, 3, ...) radians at a time and

performing back projection to a square image array group by group (Col. 3, lines 1-20, Col. 6, line 39 - Col. 10, line 68 and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Wang et al. as modified above the grouping of Lin, since a person would have been motivated to make such a modification to improve imaging by reducing computational times (Col. 9, lines 3-10) as taught by Lin.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Tam as applied to claim 3 above, and further in view of Turbell ("Cone-Beam Reconstruction Using Filtered Backprojection", February 2001, Linkoping Studies in Science and Technology dissertation No. 672) and Lin.

With respect to claim 6, Wang et al. as modified above suggests the apparatus as recited above in claim 3.

Wang et al. further discloses said reconfiguration means superimposes the filter on this projection data (Page 217, Col. 2, lines 1-4, Page 218, Col. 1, lines 2-4 and Equation 5), and

performs back projection to an image array (Equation 5 as modified above).

Wang et al. fails to disclose converts the projection data obtained to data including fan beam data and parallel beam data whose number of images taken per rotation is a multiple of the number of sides C of a rectangle or hexagon,

groups data at the same channel position and having projection phases in the go-around direction shifting by $2N\pi/C$ (N=1, 2, 3, ...) radians at a time and

performs back projection to a square image array group by group.

Turbell teaches converts the projection data obtained to data including fan beam data and parallel beam data (Page 87, Section - Parallel Rebinning, Page 94, Section - Parallel Rebinning and Pages 99-109, Section 4.3.1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Wang et al. as modified above the parallel data of Turbell, since a person would have been motivated to make such a modification to improve imaging by dramatically optimizing software or hardware implementations of the parallel back projections for speed (Page 24, lines 3-6) as taught by Turbell.

Lin teaches converts the projection data obtained whose number of images taken per rotation is a multiple of the number of sides C of a rectangle or hexagon,

groups data at the same channel position and having projection phases in the go-around direction shifting by $2N\pi/C$ (N=1, 2, 3, ...) radians at a time and

performs back projection to a square image array group by group (Col. 3, lines 1-20, Col. 6, line 39 - Col. 10, line 68 and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Wang et al. as modified above the grouping of Lin, since a person would have been motivated to make such a modification to improve imaging by reducing computational times (Col. 9, lines 3-10) as taught by Lin.

9. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Tam et al. ("Backprojection spiral scan region-of-interest cone beam CT", 1999, SPIE, Volume 3661, Pages 433-441) in view of Tam.

With respect to claim 1, Tam et al. discloses an X-ray tomograph (Introduction and Figures 2-4) comprising:

a radiation source (Introduction and Figures 3-4) and a radiation detector (Introduction and Figures 2-5) arranged opposite to each other (Introduction and Figures 2-5), between which an object is provided (Introduction and Figures 1 and 3-4), relative motion of said radiation source and radiation detector and the object with respect to a go-around axis (Title and introduction, spiral scanning of object), radiation irradiated from said radiation source and passing through the object being detected using said radiation detector (Abstract and Introduction, projection data obtained); and

reconfiguration means (reconstruction algorithm necessarily performed on computer in the computed tomography (CT) system) for creating a three-dimensional tomographic image in a region in concern of the object from the detected projection data (Page 437, line 15 and 438, lines 24-25. 3D backprojection produces voxels), said reconfiguration means

determines for each voxel a projection data phase range as an angle between 180 degrees and 360 degrees from projection data obtained at a spiral orbit scan so that a difference in absolute values of cone angles at both ends of the projection data phase range used is reduced (Pages 434-437, Section 2. Normalization Via Data Combination to include Figure 2. Only data from detector that is determined to be within mask is utilized in backprojection. Data outside the mask includes data at larger cone beam angles. By restricting backprojection to only data within mask, a difference in absolute values of cone angles at both ends of the projection data phase range used is necessarily reduced.),

superimposes a reconfiguration filter (Abstract),

assigns weights to data of the same phase or opposite phase for each phase for the projection data phase range (Page 433, Introduction lines 8-11 and Figure 1. No overlap, non-redundant data so weight is 1),

three-dimension back projects the filter-processed projection data over said projection data phase range determined for each voxel along the irradiation trace of the radiation beam (Page 437, lines11- 15).

Tam et al. fails to explicitly disclose a bed with an examinee placed thereon is provided, said radiation source and radiation detector turning around said bed which can be moved with respect to a go-around axis.

Tam teaches said radiation source and radiation detector turning around examinee and necessarily a support (bed) with an examinee placed thereon is provided (Col. 4, lines 47-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Tam et al. to include the support (bed) and the turning of

the source and detector around the support (bed) of Tam, since providing relative motion between an object and the source/detector pair by rotating either the object or the source/detector pair are two art recognized equivalents as shown by Tam (Col. 4, lines 47-64) and the substitution requires no more than ordinary skill in the art. A person would have been motivated to make such a modification to improve patient comfort by allowing the patient to remain in a horizontal position while imaging (Col. 4, lines 47-64) as implied by Tam.
Note: Figure 2 of Tam et al. appears to be only partially illustrated. The Applicant is referred to Figure 3 of Tam et al. (1998) as cited below for complete illustration of corresponding Figure.

With respect to claim 3, Tam et al. as modified above suggests the apparatus as recited above.

The claim recitations of "the projection data phase range used is determined so as to be the" do not distinguish over the prior art of Tam et al. as modified above since claim 3 does not further limit independent claim 1.

Response to Arguments

10. Applicant's arguments filed 16 April 2009 have been fully considered and they are persuasive.

Applicant's arguments see Page 5, lines 7-12, filed 16 April 2009, with respect to the 35 USC 112, Second Paragraph, rejection of at least claims 3 and 5-6 with respect to the dependency on cancelled claim 2 have been fully considered and are persuasive. The 35 USC

112, Second Paragraph, rejection of at least claims 3 and 5-6 with respect to the dependency on cancelled claim 2 has been withdrawn. However, as noted above, a separate 35 USC 112, Second Paragraph, rejection of at least claim 3 remains.

Applicant's arguments, see Page 5, lines 7-12, filed 16 April 2009, with respect to the 35 USC 112, Second Paragraph, rejection of at least claims 5-6 with respect to the limitation of a "rectangular or hexagonal display pixel" have been fully considered and are persuasive. The 35 USC 112, Second Paragraph, rejections of claims 5-6 with respect to the limitation of a "rectangular or hexagonal display pixel" have been withdrawn.

Applicant's arguments, see Page 5, lines 7-12, filed 16 April 2009, with respect to the 35 USC 112, Second Paragraph, rejection of at least claim 8 have been fully considered and are persuasive. The 35 USC 112, Second Paragraph, rejection of claim 8 has been withdrawn.

Applicant's arguments, see Page 5, lines 7-12, filed 16 April 2009, with respect to the 35 USC 112, Second Paragraph, rejection of claim 9 have been fully considered and are persuasive. The 35 USC 112, Second Paragraph, rejection of claim 9 has been withdrawn.

11. Applicant's arguments filed 16 April 2009 have been fully considered but they are not persuasive.

With respect to at least claim 1, the Applicant argues that claim 1 was amended to overcome the 35 USC 112, Second Paragraph. The Examiner disagrees. The amendment to the claim has not addressed the use of the relative term "reduced". Therefore, the Applicant's arguments are not persuasive and the claims remains rejected.

Note: The term ***minimized*** as disclosed in the Abstract of the instant application where "the absolute values of cone angles at the ends of this phase range is ***minimized***" is a definite term.

With respect to at least claim 3, the Applicant argues that claim 3 was amended to overcome the 35 USC 112, Second Paragraph. The Examiner disagrees. As noted in above, the claim appears to be incomplete. Therefore, the Applicant's arguments are not persuasive and the claims remains rejected.

With respect to at least claim 7, the Applicant argues that the claim was amended to overcome the 35 USC 112, Second Paragraph. The Examiner disagrees. The Applicant is directed to the 35 USC 112, Second Paragraph of at least claim 7 above. Prior to amending, the claimed pixel intervals were associated with using rectangular or hexagonal display pixels which were rejected as being indefinite. Simply deleting the phrase "display pixels" does not make the pixels with which they were previously associated definite. Therefore, the Applicant's arguments are not persuasive and the claims remains rejected.

Note: As noted in the 35 USC 112, Second Paragraph, rejections of at least claim 7 above, it is unclear to the Examiner as to the origin of the claimed pixel even when taken in light of the specification. The Applicant is referred to Page 3, line 27 - Page 4, line 15 of the specification

and Figure 22 as originally filed. As noted in this section of the specification, the redundancy of data for voxels reconfigured (reconstructed) with a three-dimensional backprojection method is discussed. This is consistent with claim 1 where projection data is three-dimensionally backprojected to reconfigure (reconstruct) each **voxel** (which is a term of art for ***three-dimensional*** **vol**ume **el**ement). However, the cited section of the specification then continues by discussing phase range of a reconfigured (reconstructed?) **pixel** (which is a term of art for ***two-dimensional*** **pi**cture **el**ement) which appear to have a location in a plane (slice?) perpendicular to the go-around axis (same or different than body axis?) direction as illustrated in Figure 22. The specification further states that the data redundancy changes for one pixel to another in a complicated manner (In a manner similar/same to that of the voxels?). Perhaps the reconstructed voxels form slices and the slices are oriented perpendicular to the go-around axis (same or different than body axis?) direction and the slices are position at intervals in a body axis (same or different than go-around?) direction which is associated with the relative moving speed between the examinee and said radiation source in the go-around axis (same or different than body axis?) direction was meant. Clarification, by either argument and/or amendment, is requested as to the relationship between the three-dimensional voxels which are obtained by a three-dimensional backprojection reconfiguration (reconstruction) of claim 1 and the [reconfiguration (reconstruction?) of the] two-dimensional pixels.

12. Applicant's arguments with respect to at least claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tam et al. ("Exact cone beam CT with spiral scan", 1998, Physics in Medicine and Biology, Pages 1015-1024) discloses a mask on a flat detector (Figure 3).

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN M. CORBETT whose telephone number is (571)272-8284. The examiner can normally be reached on M-F 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. M. C./
Examiner, Art Unit 2882

/Chih-Cheng Glen Kao/
Primary Examiner, Art Unit 2882